

IN THE CLAIMS:

Claims 1 and 3 - 33 have been amended.

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1. (currently amended) A switching fabric for transmitting data frames to destinations, each data frame having a destination, the switching fabric comprising:

a plurality of input ports for partitioning portions of received data frames to provide data cells; and

a plurality of switching crossbar sections, each switching of the crossbar sections being coupled to each of the input ports for receiving the data cells at cell transfer intervals on a data link coupled between each of the input ports and each of the switching crossbar sections, the each of the switching crossbar sections being coupled to transmit the data cells to any one of a plurality of output ports,

wherein each of the input ports includes logic for scheduling the transmission of each data cell of each said data frame received at each of the input ports, ~~the data frame having a destination associated with an output port~~, during a cell transfer interval for each data link coupled between each of the input ports and each of the switching crossbar sections based upon an ability of each of the switching crossbar sections to receive the data cells of the data frames with a destination associated with each of the output ports.

2. (original) The switching fabric of claim 1, wherein each of the input ports maintains a plurality of data frame queues of received data frames, each of the data frame queues corresponding with one of the output ports and having logic for enqueueing data frames having a destination associated with the output port.

3. (currently amended) The switching fabric of claim 2, wherein each ~~of the~~

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said data frames includes a data payload and each of the input ports provides for each said data frame, one or more associated data cells including a portion of the data payload, the one or more associated data cells ~~associated with the data frame~~ collectively having the data payload of each of the data frames, wherein each of the input ports schedules a transmission of each said data cell to one of the switching crossbar sections on the data link coupled between each of the input ports and each of the switching crossbar sections.

4. (currently amended) The switching fabric of claim 3, wherein each of the input ports schedules a transmission of each said data cell to one of the switching crossbar sections on the data link coupled between each of the input ports and each of the switching crossbar sections.

5. (currently amended) The switching fabric of claim 3, wherein for each data link coupled between each of the input ports and each of the switching crossbar sections, each of the input ports attempts to schedule a data cell of a partially transmitted data frame, the partially transmitted data frame having at least one associated data cell previously scheduled for transmission to a switching crossbar section, ~~from any of the data frame queues subject to the ability of the switching section to receive data cells of data frames having a destination associated with the output port associated with the destination of the partially transmitted data frame~~ prior to scheduling a transmission of a data cell of a data frame for which no data cells have been previously scheduled for transmission to a ~~switching~~ the crossbar section.

6. (currently amended) The switching fabric of claim 1, wherein each of the switching crossbar sections maintains a plurality of data cell queues of data cells

received on the data links coupling each of the switching crossbar sections to each of the input ports, each of the data cell queues corresponding with an output port, each of the data cells in each of the data cell queues being of a partition of a portion of a data frame having a destination associated with the output port.

7. (currently amended) The switching fabric of claim 6, wherein each of the data cell queues of ~~a-switching~~ the crossbar section is capable of enqueueing a finite number of data cells at any one time, and wherein the ability of ~~a-switching~~ the crossbar section to receive the data cells of the data frames with a destination associated with ~~an~~ the output port is based upon a quantity of locations in each of the data cell queues which are capable of receiving a single data cell from an input port.

8. (currently amended) The switching fabric of claim 1, the switching fabric further including a plurality of output ports, each output port having logic for reassembling data frames having a destination associated with ~~the~~ each said output port from data cells received from each of the switching crossbar sections coupled to ~~the~~ each said output port.

9. (currently amended) The switching fabric of claim 8, wherein each said output port is coupled to one or more media access control (MAC) devices through a common transmission medium, and wherein for each MAC device coupled to ~~the~~ each said output port, ~~the~~ each said output port maintains an associated MAC queue of reassembled data frames for transmission to ~~the~~ each said MAC device, the destination of each reassembled data frame in the associated MAC queue being associated with the MAC device.

10. (currently amended) The switching fabric of claim 9, wherein each ~~of the~~

said output ports transmits a signal to each of the switching crossbar sections indicating an ability to receive the data cells from data links coupling the each said output port to each of the switching crossbar sections.

11. (currently amended) The switching fabric of claim 1, wherein the switching fabric includes a plurality of output ports and for each of the output ports, each of the switching crossbar sections transmits a signal to each of the input ports indicating the ability of each of the switching crossbar sections to receive the data cells of the data frames having a destination associated with the output port.

12. (currently amended) A method of transmitting digital data from a plurality of sources to a plurality of destinations, the method comprising:

receiving data frames at each of a plurality of input ports;

partitioning portions of the received data frames to provide data cells;

receiving the data cells at each of a plurality of switching crossbar sections at cell transfer intervals on a data link coupled between each of the switching crossbar sections and an each of the input ports; and

transmitting the data cells from each switching of the crossbar sections to any one of a plurality of output ports; and

scheduling the transmission of each data cell of each data frame received at each of the input ports, ~~the data frame having a destination associated with an output port~~, during a cell transfer interval for each data link coupled between each of the input ports and each switching of the crossbar sections based upon an ability of each of the switching crossbar sections to receive data cells of data frames with a destination associated with the output port.

13. (currently amended) The method of claim 12, the method further comprising maintaining a plurality of data frame queues of the received data frames at each of the input ports, each of the data frame queues corresponding with one of the output ports and enqueueing data frames having a destination associated with the one of the output ports.

14. (currently amended) The method of claim 13, wherein each of the data frames includes a data payload, the method further comprising:

providing for each data frame in a data frame queue at an input port one or more associated data cells including a portion of the data payload of the each said data frame, the one or more associated data cells ~~associated with the data frame~~ collectively having the data payload of the each said data frame; and

scheduling a transmission of ~~each~~ the one or more associated data cells to one of the ~~switching~~ crossbar sections on the data link coupled between the input port and the ~~switching~~ the one of the crossbar sections.

15. (currently amended) The method of claim 14, the method further comprising scheduling a transmission of ~~each~~ the one or more associated data cells to the one of the ~~switching~~ crossbar sections on the data link coupled between the input port and the ~~switching~~ one of the crossbar sections prior to scheduling a transmission of a data cell of a subsequent data frame in the data frame queue to any of the ~~switching~~ crossbar sections.

16. (currently amended) The method of claim 15, the method further comprising, for each data link coupled between each input port and each ~~switching~~ crossbar section, attempting to schedule a transmission of a data cell of a partially

194 transmitted data frame, the partially transmitted data frame having at least one associated data cell previously scheduled for transmission to a switching crossbar section, ~~from any of the data frame queues subject to the ability of the switching crossbar section to receive data cells of data frames having a destination associated with the output port associated with the destination of the partially transmitted data~~ frame prior to scheduling a transmission of a data cell of a data frame for which no data cells have been previously scheduled for transmission to a switching the crossbar section.

17. (currently amended) The method of claim 12, the method further comprising, at each switching of the crossbar sections, maintaining a plurality of data cell queues of data cells received on the data links coupling each of the switching crossbar sections to each of the input ports, each of the data cell queues corresponding with an output port, each of the data cells in each of the data cell queues being of a partition of a portion of a data frame having a destination associated with the output port.

18. (currently amended) The method of claim 17, wherein each of the data cell queues of a switching crossbar section is capable of enqueueing a finite number of data cells at any one time, the method further including determining the ability of the switching crossbar section to receive the data cells of the data frames with a destination associated with ~~an~~ the output port is based upon a quantity of locations in each of the data cell queues which are capable of receiving a single data cell from an input port.

19. (currently amended) The method of claim 12, the method further comprising:

receiving data cells at each of a the plurality of output ports from each of the ~~switching~~ crossbar sections coupled to the output ports; and

at each output port, reassembling data frames having a destination associated with the each said output port from data cells received from each of the ~~switching~~ crossbar sections coupled to the each said output port.

194 20. (currently amended) The method of claim 19, the method further comprising, at each said output port, maintaining a media access control (MAC) queue of reassembled data frames to be transmitted to one or more MAC devices through a common transmission medium, the destination of each reassembled data frame in the MAC queue being associated with the one or more MAC devices.

21. (currently amended) The method of claim 17, the method further comprising ~~transmitsing~~ a signal from each said ~~of the~~ output ports to each of the ~~switching~~ crossbar sections indicating an ability to receive data cells from data links coupling the each said output port to each of the ~~switching~~ crossbar sections.

22. (currently amended) The method of claim 12, ~~wherein the switching fabric includes a plurality of output ports and for each of the output ports,~~ the method further comprising transmitting a signal from each ~~switching of the crossbar~~ sections to each of the input ports indicating the ability of each of the ~~switching~~ crossbar sections to receive the data cells of the data frames having a destination associated with the output port.

23. (currently amended) In a data communication network including a plurality of host computers for transmitting data packets to a plurality of destinations, each destination being associated with a media access control (MAC) device having a MAC address, the improvement including:

a plurality of output ports, each of the output ports being coupled to at least an associated one of the MAC devices for transmitting MAC data frames to the at least one MAC device according the MAC address associated therewith;

194 a look-up engine for receiving the data packets from the host computers and forming intermediate data frames based upon the data packets, the intermediate data frames having information identifying an output port associated with one of the destinations the network device in a header and a data payload;

a plurality of input ports for receiving the intermediate data frames from the lookup engine, each of ~~the plurality~~ of input ports partitioning the data payload of at least some of the intermediate frames received at the input port to provide a plurality of data cells; and

a plurality of ~~switching~~ crossbar sections, each ~~switching~~ of the crossbar sections being coupled to each of the input ports for receiving the data cells at cell transfer intervals on a data link coupled between each of the input ports and ~~switching~~ each of the crossbar sections, ~~the switching~~ each of the crossbar sections being coupled to transmit the data cells to any one of the plurality of output ports,

wherein each of the input ports includes logic for scheduling the transmission of each data cell of each intermediate data frame received at the each of the input ports during a cell transfer interval for each data link coupled between each of the input ports and each ~~switching~~ of the crossbar sections based upon an ability of ~~the switching~~ each of the crossbar sections to receive data cells of data frames associated with the output port.

24. (currently amended) The data communication network of claim 23,

wherein each of the input ports maintains a plurality of data frame queues of received intermediate data frames, each of the data frame queues corresponding with one of the output ports and enqueueing intermediate data frames having a destination associated with the output port.

25. (currently amended) The data communication network of claim 24, wherein each of the intermediate data frames includes a data payload and each of the input ports provides for each data frame one or more associated data cells including a portion of the data payload, the one or more associated data cells ~~associated with the data frame~~ collectively having the data payload of the intermediate data frame, wherein each of the input ports schedules a transmission of ~~each~~ the one or more associated data cells to one of the switching crossbar sections on the data link coupled between each of the input ports and each of the switching crossbar sections.

26. (currently amended) The data communication network of claim 25, wherein each of the input ports schedules a transmission of ~~each~~ the one or more associated data cells to one of the switching crossbar sections on the data link coupled between each of the input ports and each of the switching crossbar sections prior to scheduling a transmission of a data cell of a subsequent data frame in the data frame queue to any of the switching crossbar sections.

27. (currently amended) The data communication network of claim 25, wherein for each data link coupled between each of the input ports and each switching of the crossbar sections, each of the input ports attempts to schedule a data cell of a partially transmitted data frame, the partially transmitted data frame having at least one associated data cell previously scheduled for transmission to a switching crossbar

section, ~~from any of the data frame queues subject to the ability of the switching~~  
~~crossbar section to receive data cells of data frames having a destination associated~~  
~~with the output port associated with the destination of the partially transmitted data~~  
frame prior to scheduling a transmission of a data cell of a data frame for which no data  
cells have been previously scheduled for transmission to a ~~switching~~ the crossbar  
section.

28. (currently amended) The data communication network of claim 23,  
wherein each of the ~~switching~~ crossbar sections maintains a plurality of data cell  
queues of the data cells received on the data links coupling each of the ~~switching~~  
crossbar sections to each of the input ports, each of the data cell queues corresponding  
with an output port, each of the data cells in each of the data cell queues being of a  
partition of a portion of a data frame having a destination associated with the output  
port.

29. (currently amended) The data communication network of claim 28,  
wherein each of the data cell queues of a ~~switching~~ each of the crossbar sections is  
capable of enqueueing a finite number of data cells at any one time, and wherein the  
ability of a ~~switching~~ each of the crossbar sections to receive the data cells of the data  
frames with a destination associated with an the output port is based upon a quantity of  
locations in each of the data cell queues which are capable of receiving a single data  
cell from an input port.

30. (currently amended) The data communication network of claim 23,  
wherein each of the output ports includes logic for reassembling the data frames having  
a destination associated with each of the output ports from data cells received from

each of the switching crossbar sections coupled to each of the output ports.

31. (currently amended) The data communication network of claim 30, wherein each of the output ports is coupled to each MAC device associated with each of the output ports through a common transmission medium and wherein each of the output ports maintains a MAC queue of reassembled data frames for transmission to the associated MAC devices, the destination of each reassembled data frame in the MAC queue being associated with the MAC device.

32. (currently amended) The data communications network of claim 31, wherein each of the output ports transmits a signal to each of the switching crossbar sections indicating an ability to receive the data cells from data links coupling each of the output ports to ~~the switching~~ each of the crossbar sections.

33. (currently amended) The data communication network of claim 23, wherein for each of the output ports, each of the switching crossbar sections transmits a signal to each of the input ports indicating the ability of each of the switching crossbar sections to receive the data cells of the data frames having a destination associated with each of the output ports.

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